CERTIFICATE

By Authority Of
THE UNITED STATES OF AMERICA
Legally Binding Document

By the Authority Vested By Part 5 of the United States Code § 552(a) and Part 1 of the Code of Regulations § 51 the attached document has been duly INCORPORATED BY REFERENCE and shall be considered legally binding upon all citizens and residents of the United States of America. *HEED THIS NOTICE*: Criminal penalties may apply for noncompliance.

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**Document Name:** IAPMO PS-14: Material and Property Standard for Flexible Metallic Water Connectors

**CFR Section(s):** 24 CFR 3280.604(b)(2)

**Standards Body:** International Association of Plumbing and Mechanical Officials

APPROVED

*Official Incorporator:*
THE EXECUTIVE DIRECTOR
OFFICE OF THE FEDERAL REGISTER
WASHINGTON, D.C.

# INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

## MATERIAL AND PROPERTY STANDARD

## FOR

## FLEXIBLE METALLIC WATER CONNECTORS

## IAPMO PS 14-89

### 1. PURPOSE

1.1 The purpose of this Standard is to establish a generally acceptable Standard for flexible metallic water connectors. Its purpose is to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors, and users; to promote understanding regarding materials, manufacture, installation and performance, and to provide for identifying units complying with this Standard.

The provisions of this Standard are not intended to prevent the use of any alternate material or method of construction, provided any such alternate meets the intent of this Standard.

### 2. SCOPE

2.1 This Standard covers physical and performance requirements, materials, tappings, threads and other significant properties, in addition to general description of materials used. Certain features of construction of the finished product are given, together with the method of marking and identification.

2.2 Water heater connectors are to be used in exposed locations only. Other flexible metallic connectors may be installed in the wall if listed by a listing agency for that purpose.

### 3. GENERAL REQUIREMENTS

3.1 Each assembly shall consist of a length of annealed, corrugated metallic tubing with adapter fitting(s) and/or end(s) for soldering. Adapter fittings shall be of brass or steel; steel fittings shall have suitable protection against corrosion. Solder ends shall conform to ANSI B16.18.

3.1.1 All components shall be sound, durable and structurally capable of serving the purpose intended.

3.2 All materials shall be acceptable for use in potable water as determined by rules established by the National Sanitation Foundation or the U.S. Food and Drug Administration.

3.3 All joints necessary in fabricating the connector shall be suitably brazed and no joints shall be made in the corrugated section.

3.4 Water heater connectors furnished with adapter fittings for direct connection to the water heater shall be constructed with a dielectric insulator or some other means of prohibiting electrical conductivity on at least one end.

3.5 Connectors shall be manufactured in lengths up to 24".

3.6 The finished connector shall be purged of any substance detrimental to either the material or the potable water supply.

## 4. DETAIL REQUIREMENTS

4.1 All brass, used in connection with the assembled connector, shall contain not less than 60% copper.

4.2 All steel, used in connection with the assembled connector, shall be protected from corrosion. All stainless steel used shall be 300 series stainless steel.

4.3 The interior bore in the corrugated section of a copper water heater connector shall not be less than .625" in diameter, with a minimum wall thickness of the finished product of .026".

## 5. TESTING REQUIREMENTS

5.1 Connectors shall be capable of with standing a hydrostatic leak test with an internal pressure of 300 psi for two minutes with no perceptible leak.

5.2 Plated components in contact with the water shall be such that they will with stand a standard salt spray test for 200 hours without adverse effects.

5.3 Tubing shall be corrugated in such a manner that reasonable roundness of the interior bore will remain when subjected to 180 degree bend with a 3" radius. This radius shall be measured from the center line of the tube.

5.4 Connectors may also be required to have the following testing completed: Bursting pressure test to failure, hardness, chemical analysis, flow resistance or other tests on the connector.

## 6. MARKING AND IDENTIFICATION

**6.1** All connectors shall have the manufacturer's name or trademark on nuts and fittings. An acceptable label shall be placed on the tubing showing size, model, manufacturer's name or trademark.

**6.2** Water heater connector labels shall state: "For use with water in exposed locations only".

**Ratified by Membership: 1962**
**Revised: 1966, 1971, 1973, 1978, 1981, 1989.**